Generation Interconnection

This analysis was completed to assess the reliability impact for a new generator interconnecting to the PJM system as a capacity resource.

Network Impacts -362 MW Injection into the Portland 230kV substation

Network Impacts

The analysis for this project was done including all earlier queued generation projects in service. The network requirements for this condition are described below. The results of the network analysis for this project are highly dependent upon the generation projects proposed in the Northern New Jersey cluster. If sufficient Queue A generation in the Northern New Jersey cluster withdraws from the interconnection process, additional upgrades to the Portland – Whippany corridor may be required.

Normal System

- No identified problems.

Single Contingency (MAAC Criteria IIA)

- No identified problems

Multiple Facility Contingency (MAAC Criteria IIC)

- Under various double circuit outages, the Portland – Kittatinny 230 kV line was overloaded between 100% and 125% of the emergency rating.
- Under various double circuit outages, the Portland – Greystone 230 kV line was overloaded at 105% of the emergency rating.
- Due to the outage of the Portland – Greystone and Kittatinny – Pohatcong 230 kV tower line, the Kittatinny- Newton 230 kV line was overloaded at 105% of the emergency rating.
- Under various double circuit outages, Gilbert- Morris Park- Martins Creek 230 kV line was overloaded at 120% of the emergency rating.

Short Circuit Analysis

- No identified problems.

Generator Deliverability test

- Under various single contingency outages, Portland – Kittatinny 230 kV line was overloaded between 105% and 120% of the emergency rating.
- Under various single contingency outages, Portland – Greystone 230 kV line was overloaded at 105% of the emergency rating.
- Due to the outage of the Northwood- Martins Creek 230 kV line, the Martins Creek – Quarry 230 kV line was overloaded at 105 % of the emergency rating.
- Under various single contingency outages, the Gilbert - Morris Park – Martins Creek 230 kV line was overloaded at 120% of the emergency rating.

System Reinforcements and Cost Allocation

1. Convert the G943 West Wharton - Whippany 115 kV to 230 kV operation and replace the Stoney Brook bank 2 with a 230 kV high side transformer. This will also require a line termination work at Whippany to connect the new 230 kV line.

2. Rebuild the R918 Flanders to West Wharton, the Q927 Portland to Pequest River, the Pequest River - Belvidere Tap - Flanders portion of the S919 to be double circuit construction built so that a new 230 kV circuit will be built in parallel with these existing lines from Portland to West Wharton. (This new 230 kV will be connected to the converted G943 circuit at West Wharton and there will be no termination point). Terminate the new 230 kV at Portland in a ring bus breaker position between the two new proposed generation connection positions.

The reinforcement cost for items 1 and 2 above is estimated at $62 million with a 5-year lead-time. The diagram below shows the reinforcements.

B27 Portland 230 kV